

Work Order ID 131189

Monday, March 30, 2015 9:11:59 AM

131189

Page 1

Item ID: D350-748-243TRN

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Crosstube Installation, High Aft

Start Date: 3/30/2015 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/30/2015 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: MLS Date: 1503-30 Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D350-748-243	A

100 0.00

100

MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

Mori Seiki CNC Lathe Large

0.00
1-Fill tube with sand & install plugs on both ends as per Folio _____
2-Turn first side as per Folio _____
3- File transition lines smooth.
FOLIO REV: AA
DWG REV: A

1 φ mml
15/04/16

110 0.00

110

QC1- Inspection performed by CMM

QC

Memo

Quality Control

0.00

1 φ mml
15/04/20

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Item ID: D350-748-243TRN Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Crosstube Installation, High Aft
Start Date: 3/30/2015 Start Qty: 1.00 *1* Cust Item ID:
Required Date: 3/30/2015 Req'd Qty: 1.00 *1* Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
120	MORI SEIKI CNC LATHE LARGE								
Mori Seiki	Memo	0.00							
Mori Seiki CNC Lathe Large	1-Turn second side as per Folio _____ 2- File transition lines smooth. 3-Scribe Part & Batch as per Dwg D350-748-143 FOLIO REV: <u>AA</u> DWG REV: <u>A</u>								mmml 15/04/22
130		0.00							
130	QC1- Inspection performed by CMM								
QC	Memo	0.00							
Quality Control									mmml 15/04/22
140		0.00							
140	QC8- Inspect parts - second check								
QC	Memo	0.00							
Quality Control									DAS 47 9-89 15-04-27

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Item ID: D350-748-243TRN Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Crosstube Installation, High Aft
Start Date: 3/30/2015 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 3/30/2015 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150		0.00							
150	Large Fab								
Crosstubes	Memo	0.00							
Crosstubes	1-Grind machining marks								
190		0.00							
190	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and stock in kanban rack								
	Location: <u>26</u>								
200		0.00							
200	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

TW 15-05-05

TW 1505-06

ML5 MAY 06 2015

ML5 MAY 06 2015

Picklist Print

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Work Order ID: 131189

131189

Parent Item: D350-748-243TRN

D350-748-243TRN

Parent Item Name: Crosstube Installation, High Aft

Start Date: 3/30/2015

Required Date: 3/30/2015

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev: PRELIM New Issue LL 12.05.08

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6021-125		Manufactured	No				Each	61.0000		1			
D6021-125									**				
Crosstube Material - 17-4Ph SS													

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
HALL	61	
127271	41	
85076	20	
127272	38	

1 mmml 15/04/15

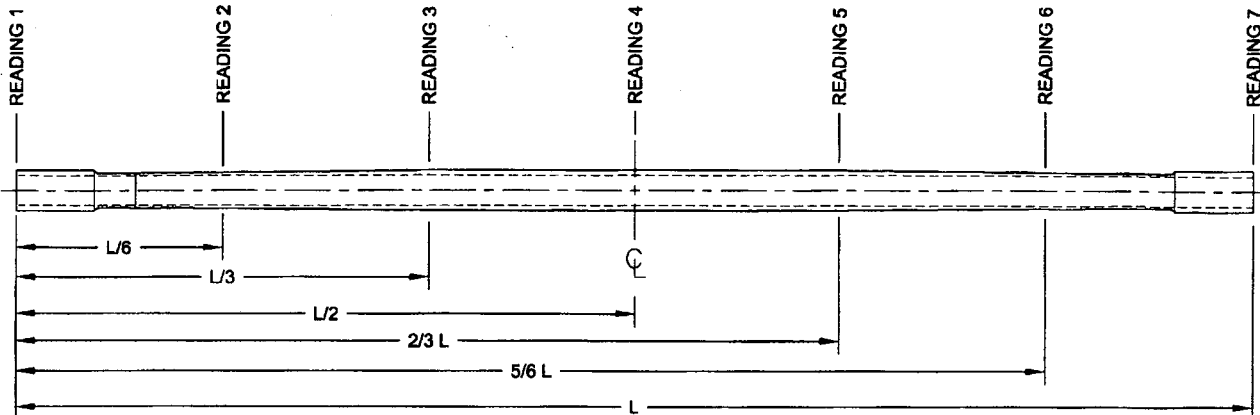
DART AEROSPACE LTD		Work Order:	131489
Description: Crosstube Assembly (AS350/355 High Aft)		Part Number:	D350-748-247
Inspection Dwg: D350-748-247 Rev: A		Page 1 of 2	

FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.243	✓		vern	CNC-08
	2.180	+0.005/-0.000	2.183	✓		↓	
	2.180	+0.005/-0.000	2.183	✓			
	2.208	+0.005/-0.000	2.212	✓			
	2.234	+0.005/-0.000	2.238	✓			
	2.253	+0.005/-0.000	2.257	✓			
	2.272	+0.005/-0.000	2.277	✓			
	2.299	+0.005/-0.000	2.302	✓			
	0.063	+/-0.010	.063	✓		vern	CNC-08
	5.25	+/-0.060	5.25	✓		11	
	R0.063	+/-0.010	.063	✓		R6	
	R0.50	+/-0.030	.500	✓		11	
SIDE B	2.240	+0.005/-0.000	2.243	✓		vern	CNC-08
	2.180	+0.005/-0.000	2.183	✓		↓	
	2.180	+0.005/-0.000	2.183	✓			
	2.208	+0.005/-0.000	2.212	✓			
	2.234	+0.005/-0.000	2.238	✓			
	2.253	+0.005/-0.000	2.256	✓			
	2.272	+0.005/-0.000	2.277	✓			
	2.299	+0.005/-0.000	2.304	✓			
	0.063	+/-0.010	.063	✓		vern	CNC-08
	5.25	+/-0.060	5.25	✓		11	
	R0.063	+/-0.010	.063	✓		R6	
	R0.50	+/-0.030	.500	✓		11	
	124.70	+/-0.060	124.700	✓		tape	L6-11

DART AEROSPACE LTD	Work Order:	131169
Description: Crosstube Assembly (AS350/355 High Aft)	Part Number:	D350-748-244
Inspection Dwg: D350-748-244 Rev: A		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.127	.127	.131	.132	-.005	0.030"
READING 2 L= 21	.119	.107	.122	.130	-.023	
READING 3 L= 41	.154	.160	.156	.149	-.011	
READING 4 L= 62	.158	.157	.156	.158	.002	
READING 5 L= 83	.154	.151	.155	.155	-.004	
READING 6 L= 103	.134	.125	.110	.114	.024	
READING 7 L= 124	.136	.125	.123	.128	-.007	

Calibration Result

Actual Block Thickness: .100 .500

SITESCAN 250 Measured Thickness: .102 .500

DAS
47

Measured by:	mmL
Date:	15/04/22

Audited by:	9-89
Date:	15-04-21

Preliminary Approval:	
Date:	

Rev	Date	Change	Revised by	Approved
A	07.01.17	New Issue (P/O D350-748-201)	KJ/JLM	
B	12.02.02	Dwg Rev updated	KJ	
C	12.06.04	Wall thickness form added	KJ	
D	13.02.27	Dimension 5.25 was 4.26	KJ	
E	14.04.25	122.70 dimension revised to 124.70	KJ	

Item	Qty -243	Part Number	Description
1	X	D350-748-243	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6021-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D5123-7	CLAMP CUSHION
5	1	AETC-1032	INSERT
6	2	MS21920-20 OR MS21920-21/-22	CLAMP (PER DART SPEC. M-MS21920-20/-21/-22)
7	1	NAS1149C0363R	WASHER (OR AN960C10)
8	1	NAS1635-3-8	SCREW (OR MS51958-63)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6021-125
FINISHED LENGTH AFTER TURNING = 124.70±0.06 (AFTER BENDING/TRIMMING = 122.70 REF)
- 2) FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-243" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.290 HOLE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

TURNING

- 10) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.

BENDING

- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- 12) MAX AMPLITUDE OF RIBBLING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- 13) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- 14) TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 60 TO 80 IN.-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

131189 M.C.J.
1503-30

RELEASED

2015 MAR 18

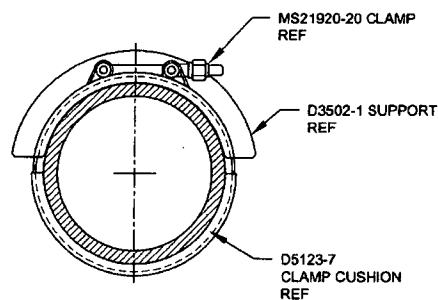
ECN 15-547

A	NEW ISSUE	CP	15.01.21
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	15.01.21		

DART AEROSPACE LTD	
HAWKESBURY, ONTARIO, CANADA	
DRAWING NO.	REV. A
D350-748-243	SHEET 1 OF 4
TITLE	SCALE
CROSSTUBE (AS 350/355 HI AFT)	NTS

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**D350-748-243
ASSEMBLY DETAIL**



SECTION A-A D4-2
SCALE 6X

INSTALL THIS SIDE ONLY, AFTER FINISH:
AETC-1032 INSERT
NAS1149C0363R WASHER
NAS1635-3-8 SCREW

14 15
D3502-1 SUPPORT
MS21920-20 CLAMP (OR -21/-22)
D5123-7 RUBBER CUSHION
2 PL

D350-748-243
BENT TUBE

RELEASED

2015 MAR 18

DESIGN	92	DART AEROSPACE LTD	
DRAWN	92	HAWKESBURY, ONTARIO, CANADA	
CHECKED	A.P.	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D350-748-243	SHEET 2 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	CROSSTUBE (AS 350/355 HI AFT)	NTS
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